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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/534,761

05/13/2005

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Q72986

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23373 7590 06/05/2008
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EXAMINER

WILSON, MICHAEL H

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

06/05/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/534,761	Applicant(s) TAKAHASHI ET AL.	
	Examiner MICHAEL WILSON	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 3-12 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 13-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20050513; 20050812</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 15 December, 2005 fails to comply with 37 CFR 1.98(a)(1), which requires the following: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement. The information disclosure statement has been placed in the application file, but the information referred to therein has not been considered.

Election of Species

1. This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

- Species 1: a gold atom bound to a carbon which is bound to another carbon (i.e. Au-C-C)

Art Unit: 1794

- Species 2: a gold atom bound to a carbon which is bound to a nitrogen (i.e. Au-C-N)
- Species 3: a gold atom bound to a sulfur (i.e. Au-S)
- Species 4: a gold atom bound to a oxygen (i.e. Au-O)

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

2. The claims are deemed to correspond to the species listed above in the following manner:

Species 1: Claims 1-9, 16, and, 17
Species 2: Claims 1-3, 4, 10-12, and 16
Species 3: Claims 1, 2, 13-16
Species 4: Claim 1, 2 and 16

The following claim(s) are generic: 1, 2, and 16.

3. The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons: The common

Art Unit: 1794

concept linking species 1-4 is a gold atom bound to at least one atom other than gold.

The common concept linking the species is not a contribution over the prior art, compounds having a gold atom bound to at least one atom other than gold are known, see Ma et al. (High luminescence gold(I) and copper(I) complexes with a triplet excited state for use in light-emitting diodes.) figure 1, and Lu et al (The $^3(\pi\pi^*)$ Emission of $\text{Cy}_3\text{PAu}(\text{CC})_n\text{AuPCy}_3$ ($n=3,4$). Effect of chain length upon acetylenic $^3(\pi\pi^*)$ emission.). Therefore the common concept linking the species does not qualify as a special technical feature.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

5. The election of species was initially discussed with applicant's representative, Bruce Kramer on 16 May, 2008. During a telephone conversation with Bruce Kramer on 19 May, 2008 a provisional election was made without traverse to prosecute Species 3, claims 1, 2, and 13-16. Affirmation of this election must be made by applicant in replying to this Office action. Claims 3-12, and 17 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected species.

Claim Objections

6. Claims 1, 2, 13-15 are objected to because of the following informalities:

Regarding claims 1, 2, and 13-15, "a material for organic light emitting device" should read --a material for an organic light-emitting device--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 2 and 13-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 2 and 13-15 recite the limitation "the light-emitting material" in line 1. There is insufficient antecedent basis for this limitation in the claim. For the purposes of this action claim 1 is interpreted to read --A light-emitting material-- giving the limitation a proper antecedent basis. Claim 16 is indefinite by dependency.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1794

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 2, 13, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Watase et al. (Solid-state luminescence and crystal structure of novel gold(I) benzenethiolate complexes.).

Regarding claims 1, 2 and 13, Watase et al. disclose a material for an organic light emitting device, comprising a gold complex in which gold is bonded to at least one atom of sulfur (page 3586, table 1). The material for an organic light-emitting device comprises the gold complex wherein the sulfur is bound to only one other atom besides gold (page 3587, figures 4-6). The examiner notes the only positive limitation of the material is the gold complex. Therefore any material which contains the gold complex anticipates the claim.

Regarding claim 14, Watase et al. disclose all the claim limitations as set forth above. Additionally, the reference discloses wherein the gold complex is a compound represented by instant formula (6) (page 3586, table 1).

11. Claims 1, 2, 13, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Yam et al. (Molecular design of luminescent dinuclear gold(I) thiolate complexes: from fundamentals to chemosensing.).

Regarding claims 1, 2, 13 and 15, Yam et al. disclose a material for an organic light emitting device, comprising a gold complex in which gold is bonded to at least one atom of sulfur, bound to only one other atom besides gold (page 181, table 1), and wherein the gold complex is a compound represented by instant formula (7) (page 181,

table 1). The examiner notes the only positive limitation of the material is the gold complex. Therefore any material which contains the gold complex anticipates the claim.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watase et al. (Solid-state luminescence and crystal structure of novel gold(I) benzenethiolate complexes.) as applied to claims 1, 2, 13 and 14 above or Yam et al. (Molecular design of luminescent dinuclear gold(I) thiolate complexes: from fundamentals to chemosensing.) as applied to claims 1, 13, and 15 above in view of Moriyama et al. (US 2002/0068192 A1).

Regarding claim 16, Watase et al. disclose all the claim limitations as set forth above. Additionally the reference discloses wherein the gold complex is luminescent as

Art Unit: 1794

a solid at room temperature (page 3586, table 1). Yam et al. disclose all the claim limitations as set forth above. Additionally the reference discloses wherein the gold complex is luminescent as a solid at room temperature (page 183, table 2). However, Watase et al. and Yam et al. do not explicitly disclose the gold complexes used in an electroluminescent device.

Moriyama et al. teach an organic electroluminescent device with a light-emitting layer between two electrodes [0044]. The reference teaches the luminescence layer containing a phosphorescent material [0048]. The phosphorescent material is taught to contain a heavy metal with a large spin-orbit interaction, such as gold [0048].

It would be obvious to one of ordinary skill in the art at the time of the invention to combine the luminescent gold material of Watase et al. or Yam et al. with the electroluminescent device of Moriyama et al. One of ordinary skill in the art would recognize that gold complexes have a large spin-orbit coupling and would be suitable for use in the device of Moriyama et al. One of ordinary skill would be motivated to use the gold complexes of Watase et al. or Yam et al. by a desire to use easily tunable (Watase page 3585, last sentence of Introduction and page 3588, last sentence to page 3589, first sentence; Yam page 175, lines 15-16) intensely emissive (Watase page 3586, second column line 7; Yam page 181, lines 12-14) complexes.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 1794

- Irwin et al. (Luminescent gold(I) acetylides: from model compounds to polymers),
Lu et al. (The $^3(\pi\pi^*)$ emission of $\text{Cy}_3\text{PAu}(\text{CC})_n\text{AuPCy}_3$ ($n=3,4$). Effect of chain length upon acetylenic $^3(\pi\pi^*)$ emission.),
- Muller et al. (Synthesis, structural characterization and photophysical properties of ethylene-gold(I) complexes.),
- Bruce et al. (Inclusion and aggregation properties of organogold complexes: crystal structures of $\text{C}_2\{\text{Au}[\text{P}(\text{C}_6\text{H}_4\text{R}-3)_3]\}_2 \cdot n\text{C}_6\text{H}_6$ ($\text{R}=\text{H}$, $n=2$; $\text{R}=\text{Me}$, $n=0$ and 1)),
- Bartsev et al. (Ru-2157524-C1)

Each reference discloses non-elected gold species which overlap with Applicants disclosure.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL WILSON whose telephone number is (571) 270-3882. The examiner can normally be reached on Monday-Thursday, 7:30-5:00PM EST, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on (571) 272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1794

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MHW

/Callie E. Shosho/
Supervisory Patent Examiner, Art Unit 1794